

Forest Values and Attitudes

in the South: Past and Future Research

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Abstract—At the turn of the 20th century, southerners favored economic utilization of forests over environmental protection. Today with few exceptions, southerners rate environmental protection and noneconomic values as higher priorities than economic uses of forests. We consider a vision of forest science and management that reflects the changing values and attitudes of southerners. We highlight four issues that we feel will help create such a vision: (1) increasing pluralism and conflict, (2) more collaboration and citizen science, (3) the need for politically viable indicators of environmental quality, and (4) the need to move beyond a preservation-intervention polarization.

INTRODUCTION

Over the last 100 years, the forestry profession has undergone a dramatic shift that, to a large degree, reflects changes in public attitudes about forests and their management (Bengston and Fan 1999, Manning and others 1999, Rolston and Coufal 1991, Steel and others 1994, Tarrant and Cordell 1997, Tarrant and others 2002, Xu and Bengston 1997). During the early and mid 20th century, forest management endorsed a resource utilization philosophy that emphasized the exploitation, use, and development of resources, dominance of economic over noneconomic values, and human control over nature (Bengston 1994, Steel and others 1994). This approach is probably best captured by the still popular “greatest good for the greatest number for the longest time” motto. It is also reflected in the Multiple-Use Sustained-Yield

Act of 1960 (Public Law 86–517), in which the economic utility of timber, mining, recreation, and other uses was emphasized. In the last 40 years, there has been a growing recognition and respect of noneconomic benefits, the rights of nonhuman parts of nature, and the importance of public involvement in management decisions. This later era, which reflects ideas expressed much earlier in the writings of Muir and Leopold among others, has been characterized by the Federal Land Policy and Management Act of 1976 (Public Law 94–579) and by recent U.S. Department of Agriculture Forest Service (Forest Service) Agency programs, such as new perspectives and ecosystems management.

At the beginning of the 20th century, the South was producing more lumber than any other region of the country (Williams 1989). Despite some calls for sustainable logging practices and protection and rehabilitation of the forests at that time, production continued without substantial changes in practices for the next 20 to 30 years. As long as there was money to be made, the public asked few environmental questions (Clark 1984). It was not until new technologies in transportation and harvesting, new chemical processes, and tax incentives introduced in the middle of the century that these dominant opinions changed. For example, the introduction of a severance tax on lumber removed from the land paved the way for extensive reforestation efforts that led to a reduction in cutover forests. (However, it should be noted that most of the harvested forests were replenished with pine (*Pinus* spp.) species to satisfy increasing demands for paper and pulpwood.) Furthermore, new chemical processes and other applications meant relatively cleaner and more efficient utilization of forests in the South and such utilization received much popular support (Hansbrough 1963). The balance began to shift again in the 1960s and throughout the remainder of the 20th century following the publication of books such as “Silent Spring”

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(Carson 1962) and the rise of environmental organizations with concerns about air, land, and water (Clark 1984). Today, the general public seems to favor environmental conservation over economic use, in part because of heightened public interest and awareness of forest issues and practices.

Questions about who has the authority to make decisions about public forests and controls over private forest land have increased the political nature of forest management, shifting power to a more diverse set of players and most notably to the general public. For example, while public forest managers have had decisionmaking authority delegated to them by the public, that public is increasingly demanding a greater level of power in determining how forests are managed. The public (often through special-interest groups) is also seeking greater involvement in actions limiting the freedom of private landowners to manage forests, especially where environmental impacts are likely.

Definitions and Theory

Before considering southerners' values and attitudes toward forests, the terms must first be defined. A value is a relatively enduring concept of the good, importance, or worth of an object. Once a value is internalized, it becomes a standard for guiding action and developing or maintaining attitudes toward relevant objects (Rokeach 1973). An attitude is a learned predisposition toward an object, issue, or situation that is emotionally toned (Cacioppo and others 1981, Fishbein and Ajzen 1975, Theodorson and Theodorson 1969). Attitudes are more transient than values and describe the extent to which individuals or groups find an object or a behavior desirable.

Values and attitudes are considered important because they are thought to influence (predispose) future action. For example, by understanding the values and attitudes that individuals or groups of people, e.g., political constituents, special-interest groups, activity-user groups, etc., hold toward forests, planners and managers are better equipped to deal with a range of natural resource actions that include mitigating potential conflicts among stakeholders; establishing new policies, programs, and goals; and defining new planning strategies (Bengston 1994, Decker and others 1989, Manfredo and others 1995, Manning and others 1999, Purdy and Decker 1989, Tarrant and others 1997a). Predicting and influencing support for management actions is essential in successful forest management. For example, disagreements

between groups holding conflicting attitudes and values are likely to require special mediation if decisions are to be implemented in the forest rather than stalled in the courts.

Over the past few decades, the general public has become increasingly aware of forestry and environmental issues (Dunlap 1991, Dunlap and Scarce 1991, Steel and Lovrich 1997, Steel and others 1997) and increasingly supportive of noneconomic values of forests (Bengston and Fan 1999, Bourke and Luloff 1994, Jacobson and others 1996, Manning and others 1999, Xu and Bengston 1997). This has resulted in greater public involvement in forest management decisions (Fortman and Kusel 1990), and especially through the proliferation of interest groups representing the diversity of values held regarding appropriate uses of natural resources. Indeed, it has been argued that the core problem facing traditional forestry is a need to adjust to changing social and environmental values (Bengston 1994). Support for a shift toward noneconomic values has also been shown to exist among Forest Service employees, especially newly appointed district rangers (Cramer and others 1993).

Traditionally, the public has placed high values on marketable commodities such as timber, range, and minerals, and these values have the characteristic of being easily measured using a monetary scale. Increasingly, the public is placing importance on noneconomic values. Various types of forest values have been identified (see, for example, Rolston and Caulf 1991) and broadly include amenity values, e.g., lifestyle, scenery, wildlife, and nature; environmental quality values, e.g., air, soil, and water quality; ecological values, e.g., habitat conservation, sustainability, threatened and endangered species, and biodiversity; public use values, e.g., subsistence, recreation, and tourism; community values, e.g., property values, community identity and stability, and sustainable economic development; and spiritual values. The overriding social trend in these forest values is the idea that humans are inextricably linked to the natural resources they depend upon.

Attitudes of note include public beliefs and evaluations of specific forest management activities and issues including ecosystems management (Manning and others 1999, Reading and others 1994, Tarrant and others 1997b), management of nonindustrial private forest (NIPF) land (Bourke and Luloff 1994), and roads in national forests (Bengston and Fan 1999).

Forest Values and Attitude Research in the South

Few empirical studies of public opinions about forests were conducted prior to 1940, and we rely on anecdotal evidence in the early popular and scientific literature to draw tentative conclusions about forest values in the South during the first 40 years of the 20th century. Prior to 1920, a majority of the public favored exploitation of forests for lumber (Williams 1989). A small, vocal, and growing minority of easterners began to voice concern about aesthetic and other noneconomic values of natural lands. During this time, remote, forested resorts were popular tourist destinations of the upper classes; the idea of creating the Great Smoky Mountains National Park was born; and romantic and picturesque views of nature matured. Technological advancements in the 1920s led to new attitudes toward forest conservation and calls for reforestation to heal the destruction and raping of southern forests that had occurred since 1880 (Mobily and Hoskins 1956). However, even with reforestation efforts beginning in the 1930s, industrial capitalism (with a focus on resource utilization and efficiency) continued to be a dominant attitude of forest owners and the general public in the South through the middle of the 20th century. During and immediately following the Depression period, few protests against the wood-producing industries were heard, as “communities asked only that the [timber] companies bring them fat payrolls” (Clark 1984).

The period from 1940 through at least the 1960s witnessed the emergence of multiple-use management. Forests were no longer managed for timber exclusively and the economic benefits of other uses (range, recreation, mining, water, etc.) were recognized. Public opinion surveys conducted by the American Forest Products Industries (AFPI) from 1941 to 1962 (Hansbrough 1963) showed that while southerners knew very little about private forestry, most respondents had a favorable impression of private forestry practices; for example, more than 66 percent expressed favorable attitudes toward the pulp and paper industry. Their attitudes clearly reveal a strong economic orientation; southerners valued the forests as an industry, as being essential to America’s growth, and as offering good career opportunities. It was not until the 1970s that attitudes and values of forests shifted toward an ethic more inclusive of noneconomic values.

Studies conducted in the last 30 to 40 years in the South show (1) a relative decline in utilitarian and economic forest values among the general

public, (2) a concomitant increase in noneconomic values and attitudes held by the general public, and (3) a continued emphasis on economic values of forests by NIPF owners (but with increasing interest in noneconomic attributes of forests). A theme emerging from work conducted in the past decade is that southerners favor a balance of environmental protection and economic development in public and private forests, but with a very strong tilt in favor of the environment. For example, in a study conducted in the Midsouth, Bliss and others (1994) found that most respondents believe a mix of economics and environment is necessary, but nearly three times as many chose the environment over the economy as chose the reverse. A balance of environmental and economic values is also reported in studies of NIPF owners in the Southeast (Brunson and others 1996, Williams and others 1996), in studies of North Carolinian (University of North Carolina 1993) and South Carolinian (University of South Carolina 1992) residents, and in studies of residents of southern Appalachia (Cordell and others 1996). Other work suggests that southerners assign a higher priority to environmental protection than to economic utilization of forests (Bliss and others 1997, Cordell and others 1996, Tarrant and others 2002).

Cordell and others (1996) found that responding residents of southern Appalachia exhibited proenvironmental values and attitudes that were moderately stronger than the national average. For example, more respondents were against increasing timber harvesting on private land (46.5 percent) than were in favor (35.8 percent) and a much larger proportion were against (72.1 percent) than were in favor of (17.6 percent) timber harvesting on public lands. Furthermore, most respondents supported harvesting of dead and downed trees (70.0 percent), but were against the use of fire as a management tool (59.3 percent) and having a landscape consisting of “brown and dead trees” (68.5 percent). Respondents also held slightly stronger proenvironmental attitudes toward protecting fish and wildlife, and on aquatic and clean air issues, than toward forest practices. Overall, these findings are consistent with an emerging noneconomic orientation to forests. However, since most respondents were not in favor of using fire as a management tool (which could include letting forests burn naturally) or having a dead landscape (which could be a natural occurrence), the public may have low knowledge about many ecological processes or management practices. Such gaps in knowledge about forest

activities have been reported in other studies of the South (see Bliss and others 1994, Hansbrough 1963, Tarrant and others 1997b).

Other studies also reveal a relatively high level of environmental concern among southern residents. A University of North Carolina (1993) study reported that 48 percent of southern respondents (vs. 43 percent of nonsoutherners) felt that the environment had become worse in the past 10 years, and 13 percent (vs. 19 percent of nonsoutherners) felt that the environment had improved. In a University of South Carolina (1992) study, 81 percent of South Carolina residents indicated that it was more acceptable to maintain an acceptable level of water quality than to increase the number of jobs in the State. In other work, Bengston and Fan (1999) found that the most strongly held attitudes about roads in national forests were that they provided recreation access and contributed to ecological damage. Consistent with results from other regions of the country, eastern (including southern) residents rated commodity-related benefits of forests roads, such as access for timber harvesting or mining, less important than noneconomic values, such as access for scenic viewing and recreation.

A few studies have examined the forest values and attitudes of one special-interest group: NIPF landowners. NIPF owners manage about 70 percent of the forest land in the South and 58 percent in the Nation as a whole, although many do not depend on their forest cover for an income (Jacobson and others 1996). Studies around the country report a preference by NIPF owners for environmental over economic objectives for managing forests that is consistent with attitudes of the general public (Bourke and Luloff 1994, Brunson and others 1996). This ordering by NIPF owners of environmental over economic values may not be as strong in the South as in other regions. In a study conducted in the Coastal Plain of South Carolina, Jacobson and others (1996) found that while over 75 percent of NIPF owners supported nontimber benefits of forests, commodity values ranked highest overall in importance. When asked to identify their top three reasons for managing forest land, timber value and overall land value ranked much higher (42.1 and 37.8 percent, respectively, reporting these as one of their top three choices) than nontimber reasons such as improving water quality (5 percent) and increasing nontimber revenues (10.2 percent). Williams and others (1996) found that Arkansas NIPF owners supported environmental protection initiatives on private forests but also strongly

believed that private forest owners should have a right to use their land in any fashion without regulations. NIPF owners in the delta and southwest regions of the State especially emphasized a utilitarian approach to forests (supporting their use for growing and selling trees). Hodge and Southard (1992), however, found Virginia forest owners to value scenery and wildlife over commodity production. Similarly, Birch (1997) found that noneconomic ownership objectives ranked higher for many NIPF landowners living in the South, especially the increasing majority of people who own smaller acreages. The rapid turnover of forest lands in the South suggests that people with more urban and more environmental conservation orientations are becoming the new owners and neighbors of southern forests (Hull and Stewart 2002). Interestingly, while most of the NIPF owner respondents considered themselves to be “middle of the road” environmentalists, the majority were not familiar with the Endangered Species Act or the Clean Water Act, suggesting that many may lack information or be misinformed about natural resources.

Current studies suggest that the general public's preferences for environmental protection may be growing even stronger. In a survey of southern residents, Tarrant and others (2002) found that wood production was rated as the least important of four listed values associated with forests and clean air as the most important. However, their work also showed that there were some differences between views of public and private forests. The provision of wood products was not valued as low for private forests as for public forests, and the provision of clean air was not valued as high for private forests as for public forests. These results suggest that southerners hold stronger (more restrictive) values about public than private forests; i.e., they believe strongly that public forests should provide clean air in preference to wood products, but do not hold such restrictive values for private forests. In the same study by Tarrant and others, forest values were significantly influenced by age and gender. For example, younger people (16 to 24 years) placed significantly less importance on wood products and significantly more on heritage values of private forests than did older people (50+ years). For public forests, the younger generation valued scenic beauty significantly higher than did the older generation. Generally, younger people attributed more noneconomic values to forests than did older people. Males were found to value private forests for wood

production significantly more than did females, while females valued public forests for heritage values significantly more than did males. Overall, females demonstrated less support for commodity values and more proenvironmental attitudes than males. These findings are consistent with other national and regional studies showing that younger people and females are more likely to exhibit proenvironmental orientations toward forests than are individuals in other categories. Kellert and Berry (1987) found gender to be the most important demographic influence on forest wildlife values. Men demonstrated significantly stronger utilitarian and scientific beliefs, while women had stronger moralistic and humanistic beliefs. Steel and others (1994) reported that women have higher proenvironmental values of forests than do men and that younger persons have higher proenvironmental values of forests than do older persons.

Steel and Lovrich (1997) have argued that the movement toward an environmental protection approach to forests and forest management in North America reflects a postindustrial society in which “higher order” needs for self-development and self-actualization have supplanted “subsistence” needs that are satisfied through material acquisition. Factors that have contributed to this change include (1) a shift in population from rural to urban areas and (2) an increase in economic growth. An increasingly urban population is thought to have a stronger association with a biocentric orientation because the physical connection between people and the realities of natural resource systems has been removed. Also economic growth in urban areas may have created public desire for nonmaterial uses (and, therefore, less resource extraction) of natural systems (Steel and Lovrich 1997).

In the South, fairly rapid and large increases in wealth and urbanization (along with higher education levels) might help explain why southerners have begun to favor environmental protection over economic and utilitarian uses of forests. Since 1980, the South’s population has increased at a higher rate (14.16 percent) than in the Nation (9.78 percent), with most of the increase occurring in major urban areas such as Atlanta, GA, Austin, TX, Dallas, TX, and Miami, FL, and along the eastern coastline (Tarrant and others 2002). In the South, the population declined only in rural areas, including the Southern Appalachians, the Mississippi River Basin, and the western Texas and Oklahoma Panhandle. Incomes have increased in the South,

with the highest gains in median household income in the eastern half of the South, especially in major cities, in the Carolinas, and along the Florida coast. Income levels decreased in the Mississippi River Basin, the Southern Appalachians, Texas, and Oklahoma, and along the coast of Louisiana.

CONCLUSIONS

The purpose of this conclusion is to proffer a vision of forest science and management reflecting the changing attitudes and values reviewed above. Gazing into a crystal ball can be both empowering and sobering. The forestry profession is empowered when it recognizes that it is as much about conflict resolution, communication, perceptions, and values as it is about soil erosion, volume estimates, and tree biology. Social science not only provides a critical tool for forest management but it helps professionals be much more sophisticated in defining and solving forest management problems. We are sobered, however, when we recognize that we know very little about the social dynamics of forest management and still struggle just to ask relevant questions about this subject.

Below, we discuss four value-related issues we expect to have profound implications for forest science and management. These are (1) pluralism and conflict—in the future, the conduct of debate about matters of forest science and forest management will be characterized by more pluralism and more conflict; (2) more collaboration and citizen science—the general public will have more influence in matters formerly decided largely by specialist professionals; (3) politically viable indicators of environmental quality—those in the social and natural sciences will need to collaborate to develop politically viable indicators of environmental quality; and (4) the preservation-intervention dichotomy—forest science and management need to move beyond the polarizing preservation-conservation dichotomy.

Pluralism and Conflict

An increasingly pluralist society will increase the diversity of stakeholders demanding and deserving a place at the decisionmaking table. Diversity springs from many sources. The ethnicity of the South’s population is changing and the increasing political power of groups that formerly had little influence will likely affect the management of forested lands. Migration from rural to urban areas leaves many remote forested areas without much political representation. While this phenomenon is more characteristic of Western

States, some Southern Appalachian and west Texas counties are still losing population to fast-growing urban and suburban counties. The result is that State and Federal forestry agencies will be redirected by legislators to favor the values and concerns of urban and suburban constituents over the needs of rural residents and industries.

Migration from urban to rural areas presents a different set of challenges in that forests get new neighbors and new owners. People are bypassing traditional suburbs to live on small, forested estates. Trends in forest ownership show more and more people own smaller and smaller holdings, so that a decade from now the average forest landowner will own < 15 acres. These owners have new ideas about forest management and tend to be politically savvy and more insistent on the use of formal mechanisms for making decisions (Fortmann and Kusel 1990). Not only are the owners and neighbors of forests different, but so is the cast of professionals. More disciplines and professions involve themselves in decisions about forested areas. Planning, landscape architecture, ecological economics, environmental engineering, industrial ecology, conservation biology, and restoration ecology are just a few of the disciplines that now join with forestry and wildlife biology in providing professional expertise and science about forest land management issues.

One can debate whether urban values will replace or evolve into rural values, and whether hunting, timber harvesting, and other consumptive activities will decline or increase, but we can state with some confidence that the number and diversity of views about what should happen on forested lands will increase.

More Collaboration and Citizen Science

People are increasingly aware of the limitations of positivist, bureaucratic, modernist science, and decisionmaking approaches that seek optimal solutions using unbiased information to maximize the greatest good for the greatest number for the longest time (Lee 1993, Stankey 2000). Science is limited in what it can offer natural resource management (Robertson and Hull 2001). The uncertainty in future conditions provides just one compelling example of this limitation. The world and how it works is so utterly complex (chaotic and changing) that relative to what might be known about it, we now know very little, and we are not likely to ever know all that much. Yearley (2000) defines four levels of uncertainty. Conservation decisions are and must be made at each level, but the role of science in the decision differs

dramatically depending on the level of uncertainty. At the first level of uncertainty, risk is estimated and characterized through science with statistical estimates of error, reliability, and precision. The next level involves more uncertainty because the system is not understood well enough so that its properties can be quantified, but most of the main parameters likely to affect the outcome are known. For example, ecosystems are difficult to define as ecologically significant units due to their dynamism and their indefinite boundaries, but we know that energy flows, population dynamics, and keystone species are important parameters for most ecosystems. The third type of uncertainty is ignorance. In cases of ignorance, we don't know what we don't know. In other words, we don't even know the main parameters; e.g., the impact of global warming on forest productivity. Lastly, indeterminacy is the highest level of uncertainty. It is impossible to know or predict how some systems will work because the system's operation depends in large part on human behavior that is likely to change in the future and, thus, is entirely outside the scope of scientific prediction. For example, this is the case with estimations of the long-term health and sustainability of humanized ecosystems in which energy consumption, waste production, tastes, and technological improvements in efficiency are not only unknown but likely to change in unanticipated ways.

Scientists find themselves in an awkward position. On the one hand, the public asks for policy formation and management decisions based on the "best available science." On the other hand, there is declining public trust in science, increased recognition of scientific uncertainty, growing demand for scrutiny of all decisions, and increased disenchantment with any authority. Citizen science, which involves and respects citizen concerns during key stages of the knowledge generation process, is offered as one possible response to these concerns (Fischer 2000, Shutkin 2000). Other responses call for a less rigid, less self-conscious, and more adaptable management approach that makes it easier for scientists, managers, and the public to learn from and adapt to changing situations as they emerge (Holling 1978, Lee 1993, Norton 1998).

Politically Viable Indicators of Environmental Quality

Indicators of environmental quality are used prescriptively and descriptively. They describe what is and prescribe conditions that should be. These terms are important because (1) they direct

scientific inquiry, (2) they are used to set policy goals and evaluate management outcomes, and (3) they both inform and reflect public perceptions and expectations of current and possible environmental conditions. Indicators of environmental quality are powerful tools for environmental management (see Bergquist and Bergquist 1999, Rapport and others 1995). Indicators are the qualities of the environment that science monitors; e.g., “acid” producing gases for air quality, threatened and endangered species for biodiversity loss, and site index for forest productivity. Indicators trigger corrective management action when they exceed some negotiated level. Their use also enhances accountability by providing measurable evidence of progress towards agreed future conditions. Developing indicators requires a sophisticated combination of social and natural sciences. Social sciences are necessary because effective indicators must reflect the values, norms, and goals of the society for which the environment is being managed. They must reflect the qualities of the environment that society cares about and is willing to allocate its limited resources to maintain. Natural sciences are necessary to make indicators descriptively precise, reliable, and theoretically rigorous representations of environmental conditions. For example, when a community decides that it wants to manage water quality, it selects indicators of water quality, such as amount of surface water retention and nutrient load, to direct management and gauge success. These indicators prescribe desired future conditions (the community wants more water retention and less nutrient load). The community could have selected other indicators (ground-water pollution or water turbidity) and, thus, prescribed different future conditions.

The Environmental Monitoring for Public Access and Community Tracking (EMPACT) project at the U.S. Environmental Protection Agency provides an important illustration of this approach (<http://www.epa.gov/empact/>) as do certification programs that develop and assess indicators of sustainable forestry. The current international Montreal Process on the Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests (<http://www.mpci.org>) represents one of the most comprehensive efforts to integrate social and biophysical indicators in addressing forest management in the South and elsewhere. These indicators of environmental quality must reflect an increasingly diverse set of values being attributed

to forests. As illustrated by the first section of this chapter, forests are valued as much more than sources of water, wood, wildlife, recreation, timber, and range. Indicators of forest quality that serve as guides for management should reflect the deeper symbolic meanings attributed to diverse, sustainable, forest ecosystems as well as the property value, community identity, and sense of stability that living near forests provides.

The Preservation-Intervention Dichotomy

Preferences for management often polarize around the role of humans in nature, and around the extremes of preservation and intervention. The preservationists have characterized the interventionists as environmental rapists promoting irresponsible development. They argue that humans can only soil nature’s goodness. The interventionists have characterized the preservationists as privileged urbanites who do not understand or value the role of human culture in nature. They argue that humans can improve upon nature’s randomness and inefficiencies. Disagreements regarding the appropriate role of humans in the natural landscape are a key factor polarizing discussions about natural resource management (Callicott and others 1999, Dizard 1994, Hull and other 2001, Ingerson 1994, Senecah 1996).

Bioculturalism offers an alternative. It encourages stakeholders to recognize human society as an integral component of ecological systems and seeks ways for people to interact with and live sustainably in nature. Bioculturalism is increasingly accepted by the international conservation community, which has long recognized the limited effectiveness of preservation strategies that favor biological diversity over cultural diversity (Droste and others 1995, West and Brechin 1991, Zimmerer and Young 1998). Another place to look for inspiration and direction is in the innovative ideas of contemporary bioculturalists such as William Jordan, Frederick Turner, and Michael Pollan (Jordan 1994, Pollan 1991, Turner 1994). These three thought-provoking writers are among a growing contingent of biocultural activists who are designing creative approaches to the human-nature relationship based on the belief that humans can be artful agents of landscape change. “Sunflower forests,” the biocolonization of neighboring planets, and “the cultivation of a new American garden” are among bioculturalists’ ideas for a better, more democratic, sustainable, and desirable future.

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